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INFORMATION DISCLOSURE STATEMENT BY APPLICANT

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JUL 18 2000

PATENT AND TRADEMARK OFFICE

Complete if Known

Application Number	09/526,656
Filing Date	March 15, 2000
First Named Inventor	Niko Pagoulatos et al.
Group Art Unit	2721
Examiner Name	Not Yet Assigned
Attorney Docket Number	004735.P001

Sheet 1 of 12

U.S. PATENT DOCUMENTS

Examiner Initials *	U.S. Patent Document Number	Name of Patentee or Applicant of Cited Document	Date of Publication of Cited Document MM-DD-YYYY	Filing Date if Appropriate
See	6,006,126	Cosman	12/21/1999	06/07/1995
See	5,891,034	Bucholz	04/06/1999	06/07/1995
See	5,383,454	Bucholz	01/24/1995	07/02/1992

FOREIGN PATENT DOCUMENTS

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OTHER DOCUMENTS

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See	N.D. Kitchen et al., "Accuracy in frame-based and frameless stereotaxy," <i>Stereotactic Functional Neurosurgery</i> , Vol. 61, pp. 195-206, 1993.	
See	K. R. Smith et al., "The neurostation - a highly accurate, minimally invasive solution to frameless stereotactic neurosurgery," <i>Computerized Medical Imaging and Graphics</i> , Vol. 18, pp. 247-56, July-August 1994.	
See	R. L. Galloway, Jr., "Frameless stereotactic systems," in <i>Textbook of Stereotactic and Functional Neurosurgery</i> , P. L. Gildenberg and R.R. Tasker, Eds., ch. 21, pp. 177-82, McGraw Hill, New York, 1998.	

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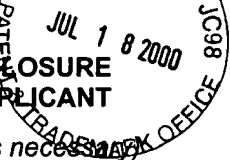
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See	D. L. G. Hill et al., "Estimation of intraoperative brain surface movement," in <i>Proceedings of the CVRMed-MRCAS'97</i> , pp. 449-58, 1997.	
J	R. M. Comeau et al., "Intraoperative US in interactive image-guided neurosurgery," <i>Radiographics</i> , Vol. 18, pp. 1019-27, July-August 1998.	
↓	W. E. Butler et al., "A mobile computed tomographic scanner with intraoperative and intensive care unit applications," <i>Neurosurgery</i> , Vol. 42, pp. 1305-10, June 1998.	

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See	V. M. Tronnier et al., "Intraoperative diagnostic and interventional magnetic resonance imaging in neurosurgery," <i>Neurosurgery</i> , Vol. 40, pp. 891-98, May 1997.	
I	P. Couillard et al., "Focus on peroperative ultrasonography," <i>Neurochirurgie</i> , Vol. 42, pp. 91-94, 1996.	No
C	N. Di-Lorenzo et al., "A comparison of computerized tomography-guided stereotactic and ultrasound-guided techniques for brain biopsy," <i>Journal of Neurosurgery</i> , Vol. 76, pp. 1044-45, November 1991.	

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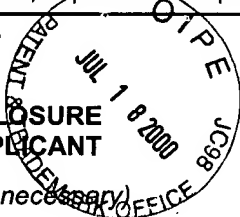
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Sc	A. Jodicke et al., "Intraoperative three-dimensional ultrasonography: an approach to register brain shift using multidimensional image processing," <i>Minimally Invasive Neurosurgery</i> , Vol. 41, pp. 13-19, 1998.	
I	R. D. Bucholz et al., "The correction of stereotactic inaccuracy caused by brain shift using an intraoperative ultrasound device," in <i>Proceedings of the CVRMed-MRCAS'97</i> , pp. 459-66, 1997.	
✓	R. W. Prager et al., "Rapid calibration for 3D free-hand ultrasound," <i>Ultrasound Med. Biol.</i> , Vol. 24, pp. 855-69, March 16, 1998.	

Examiner Signature: *Sheela Chavan*

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SCC	H. Hirschberg et al., "Incorporation of ultrasonic imaging in an optically coupled frameless stereotactic system," <i>Acta Neurochir</i> , Vol. 68, pp. 75-80, 1997.	
↓	N. Hata et al., "Development of a frameless and armless stereotactic neuronavigation system with ultrasonographic registration," <i>Neurosurgery</i> , Vol. 41, pp. 608-12, September 1997.	
↓	J. W. Trobaugh et al., "Frameless stereotactic ultrasonography: method and applications," <i>Computerized Medical Imaging and Graphics</i> , Vol. 18, pp. 235-46, July-August 1994.	

Examiner Signature: <i>Sheel Chavan</i>	Date Considered: <i>7/03</i>
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U.S. PATENT DOCUMENTS

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SC	S. Lavalley, "Registration for computer-integrated surgery: methodology, state of the art," in <i>Computer- Integrated Surgery: Technology and Clinical Applications</i> , pp. 77-97, MIT Press, Cambridge, MA, 1996.	
I	J. T. Lewis et al., "An ultrasonic approach to localization of fiducial markers for interactive, image-guided neurosurgery - part I: principles," <i>IEEE Transactions on Biomedical Engineering</i> , Vol. 45, pp. 621-30, May 1998.	
✓	C. R. Maurer Jr. et al., "Registration of head volume images using implantable fiducial markers," <i>IEEE Transactions on Medical Imaging</i> , Vol. 16, pp. 447-62, August 1997.	

Examiner Signature Sheela Chavan

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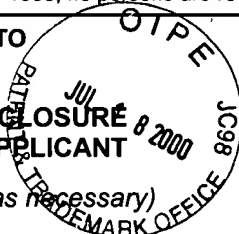
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See	M. S. Alp et al., "Head registration techniques for image-guided surgery," <i>Neurological Research</i> , Vol. 20, pp. 31-37, January 1998.	
↑	C. Kresmer et al., "Image registration of MR and CT images using a frameless fiducial marker system," <i>Magnetic Resonance Imaging</i> , Vol. 15, pp. 579-85, November 5, 1997.	
See	M. D. Mitchell et al., "Agarose as a tissue equivalent phantom material for NRM imaging," <i>Magnetic Resonance Imaging</i> , Vol. 4, pp. 263-66, 1996.	

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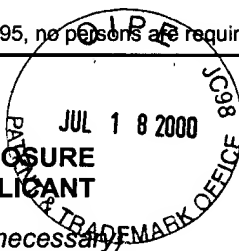
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SCC	N. Pagoulatos et al., "Calibration and validation of free-hand 3D ultrasound systems based on DC magnetic tracking," in <i>Proceedings of the SPIE</i> , Vol. 3335, pp. 59-71, 1998.	
	K. S. Arun et al., "Least-squares fitting of two 3-D point sets," <i>IEEE Transactions on Pattern Analysis and Machine Intelligence</i> , Vol. 9, pp. 698-700, September 1987.	
	C. R. Maurer, Jr. et al., "Registration of 3-D images using weighted geometrical features," <i>IEEE Transactions on Medical Imaging</i> , Vol. 15, pp. 836-49, December 1996.	

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SCC	D. F. Leotta et al., "Performance of a miniature magnetic position sensor for three-dimensional ultrasonic imaging," <i>Ultrasound in Medicine and Biology</i> , Vol. 23, pp. 597-609, 1997.	
↓	K. K. Shung et al., "Ultrasonic transducers and arrays", <i>IEEE Engineering in Medicine and Biology Magazine</i> , Vol. 15, pp. 20-30, November-December 1996.	
↓	P. R. Detmer et al., "3D ultrasonic image feature localization based on magnetic scanhead tracking: in vitro calibration and validation," <i>Ultrasound in Medicine and Biology</i> , Vol. 20, pp. 923-36, 1994.	

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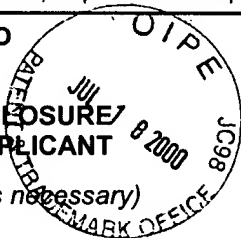
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see	W. S. Edwards et al., "PC-based workstation for three-dimensional visualization of ultrasound images," in <i>Proceedings of the SPIE</i> , Vol. 3031, pp. 1163-76, 1995.	
↓	S. J. Goerss et al., "A stereotactic magnetic field digitizer," in <i>Stereotactic and Functional Neurosurgery</i> , Vol. 63, pp. 89-92, 1994.	
↓	Y. Kim et al., "Programmable ultrasound imaging using multimedia technologies: A next-generation ultrasound machine," <i>IEEE Transactions on Information Technology in Biomedicine</i> , Vol. 1, pp. 19-29, March 1997.	

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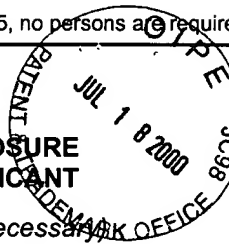
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See	R. M. Comeau et al., "Integrated MR and ultrasound imaging for improved image guidance in neurosurgery," in <i>Proceedings of the SPIE</i> , Vol. 3338, pp. 747-54, February 1998.	
	J. M. Fitzpatrick et al., "Predicting error in rigid-body point-based registration," <i>IEEE Transactions on Medical Imaging</i> , Vol. 17, pp. 694-702, October 1998.	
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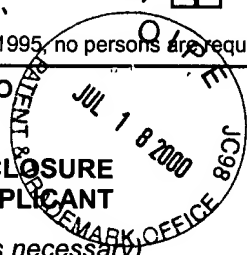
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Application Number	09/526,656
Filing Date	March 15, 2000
First Named Inventor	Niko Pagoulatos et al.
Group Art Unit	2721
Examiner Name	Not Yet Assigned
Attorney Docket Number	004735.P001

Sheet 12 of 12

U.S. PATENT DOCUMENTS

Examiner Initials *	U.S. Patent Document		Name of Patentee or Applicant of Cited Document	Date of Publication of Cited Document MM-DD-YYYY	Filing Date if Appropriate
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See	H. Erbe et al., "3-D ultrasonography and image matching for detection of brain shift during intracranial surgery," in <i>Proceedings of the Computer Assisted Radiology</i> , pp. 225-30, 1996.	

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